

unit located in front of said lock chamber, and

said cassette mount unit has a cassette positioning plane in which all cassettes, containing samples to be processed and exposed to the air, are positioned in front of a front wall of said lock chamber,

the method comprising a step of:

placing said cassette on and removing said cassette from said cassette mount unit which is in front of said lock chamber while maintaining a surface of the samples substantially horizontal.

54B CS 13. (Amended) A method of treating a sample in plural vacuum processing chambers, comprising the steps of:

placing a cassette, containing the sample, at a position in front of a front wall of a lock chamber, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, of the plural vacuum processing chambers, using the lock chamber;

processing said sample in said vacuum processing chamber;

carrying out said sample, processed in said vacuum processing chamber, to said cassette, using said lock chamber; and

removing said cassette from the cassette table.

B³ 54B CS 15. (Amended) A method of treating a sample in plural vacuum processing chambers, comprising the steps of:

placing a cassette, containing the sample, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, of the plural vacuum processing chambers, using a lock chamber;

processing said sample in said vacuum processing chamber;

carrying out said sample, processed in said vacuum processing chamber, to said cassette which had contained the sample prior to carrying the sample into the vacuum processing chamber, using said lock chamber; and

removing said cassette from the cassette table.

SUBC8 17. (Amended) A method of treating a semiconductor wafer in plural vacuum processing chambers, comprising the steps of:

placing a wafer storing structure, containing the semiconductor wafer, at a position in front of a front wall of a lock chamber, on a wafer storing structure table, the wafer storing structure being exposed to the air;

carrying in the semiconductor wafer into a vacuum processing chamber, of the plural vacuum processing chambers, using a lock chamber;

processing said semiconductor wafer in said vacuum processing chamber;

carrying out said semiconductor wafer, processed in said vacuum processing chamber, to said wafer storing structure which had contained the semiconductor wafer prior to carrying the semiconductor wafer into the vacuum processing

~~B4~~ chamber, using said lock chamber.

SUBC9 19. (Amended) A method of treating a semiconductor wafer
in plural vacuum processing chambers, comprising the steps of:

Sim placing a wafer storing structure, containing ~~the~~^{the} semiconductor wafer, at a position in front of a front wall of a lock chamber, on a wafer storing structure table, disposed under a wafer storing structure transferring atmospheric pressure;

~~B5~~ carrying in the semiconductor wafer into a vacuum processing chamber, of the plural vacuum processing chambers, using the lock chamber;

processing said semiconductor wafer in said vacuum processing chamber;

carrying out said semiconductor wafer, processed in said vacuum processing chamber, to said wafer storing structure which had contained the semiconductor wafer prior to carrying the semiconductor wafer into the vacuum processing chamber, using said lock chamber.

SUBC10 21. (Amended) A method of treating a sample in plural vacuum processing chambers, comprising the steps of:

~~B6~~ placing a cassette, containing the sample, at a position in front of a front wall of a lock chamber, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, of the plural vacuum processing chambers, using the lock chamber, wherein the sample is carried directly from the

cassette to the lock chamber;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum processing chamber, to said cassette which had contained the sample prior to carrying the sample into the vacuum processing chamber, using said lock chamber.

SUBC 23. (Amended) A method of treating a sample in plural vacuum processing chambers, comprising the steps of:

placing a cassette, containing the sample, at a position in front of a front wall of a lock chamber, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, of the plural vacuum processing chambers, using the lock chamber, wherein the sample is carried directly from the cassette to the lock chamber, samples being transferred from the cassette to the lock chamber;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum processing chamber, to said cassette from which the sample had been carried into the vacuum processing chamber, using said lock chamber.

SUBC 25. (Amended) A method of treating a sample in plural vacuum processing chambers, comprising the steps of:

placing a cassette, containing the sample, at a

position in a row in front of a front wall of a lock chamber, on a cassette table, disposed under a cassette transferring atmospheric pressure;

carrying in the sample into a vacuum processing chamber, of the plural vacuum processing chambers, using the lock chamber, whereby the sample is carried into the lock chamber from the cassette;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum processing chamber, using said lock chamber, whereby the sample is carried out from the lock chamber to the cassette,

wherein the sample is carried from the cassette to the lock chamber in a direction opposite to the direction in which the sample is carried out from the lock chamber to the cassette.

26. (Amended) A method of treating a sample in plural vacuum processing chambers, comprising the steps of:

placing a cassette, containing the sample, at a position in a row in front of load and unload lock chambers, the load and unload lock chambers being separate chambers, the cassette being placed on a cassette table disposed under a cassette transferring atmospheric pressure;

carrying in the sample into a vacuum processing chamber, of the plural vacuum processing chambers, using the load lock chamber;

processing said sample in said vacuum processing

chamber; and

carrying out said sample, processed in said vacuum processing chamber, using said unload lock chamber.

Please add the following new claims to the application:

--27. A transfer method in operating a vacuum processing apparatus, the vacuum processing apparatus including:

a transfer chamber connected to plural vacuum processing chambers in which substrates to be processed are vacuum processed one-by-one;

a cassette table for mounting in air a cassette which receives plural substrates to be processed or substrates having been processed;

a load lock chamber and an unload lock chamber, for carrying in and carrying out said substrates to be processed or said substrates having been processed, from and to said cassette in the air, and for carrying in and carrying out said substrates to be processed or said substrates having been processed, from and to any of said vacuum processing chambers through said transfer chamber;

one atmospheric transfer apparatus for transferring said substrates to be processed or said substrates having been processed between said cassette in the air and said load lock chamber and said unload lock chamber; and

gate valves provided respectively at an atmospheric side and a vacuum side of said load lock chamber and said unload lock chamber and for opening and closing at every

carry-in and carry-out time of said substrates to be processed or said substrates having been processed so as to change over said load lock chamber and said unload lock chamber in an atmospheric atmosphere or a vacuum atmosphere;

wherein the transfer method comprises:

carrying in and carrying out said substrates to be processed or said substrates having been processed, one-by-one, between said load lock chamber or said unload lock chamber at said atmospheric atmosphere and said cassette in the air.

B⁹ 28. The transfer method according to claim 27, including the further step of carrying in and carrying out said substrates to be processed or said substrates having been processed, one-by-one, between said load lock chamber or said unload lock chamber in the vacuum atmosphere and said cassette in the air.

29. The transfer method according to claim 27, including the further step of carrying in and carrying out said substrates to be processed or said substrates having been processed, one-by-one, between said load lock chamber or said unload lock chamber in the vacuum atmosphere and the transfer chamber in the vacuum atmosphere.

sub 30. A transfer method in operating a vacuum processing apparatus, the vacuum processing apparatus including:
a transfer chamber connected to plural vacuum

processing chambers in which substrates to be processed are vacuum processed one-by-one;

a cassette table for mounting in air a cassette which receives plural substrates to be processed or substrates having been processed;

a load lock chamber for carrying in said substrates to be processed from said cassette in the air and for carrying out said substrates to be processed to any of said vacuum processing chambers through said transfer chamber;

an unload lock chamber for carrying in said substrates having been processed from any of said vacuum processing chambers through said transfer chamber and for carrying out said substrates having been processed to said cassette in the air;

one atmospheric transfer apparatus for transferring said substrates to be processed or said substrates having been processed between said cassette in the air and said load lock chamber and said unload lock chamber; and

gate valves provided respectively at an atmospheric side and a vacuum side of said load lock chamber and said unload lock chamber and for opening and closing at every carry-in and carry-out time of said substrates to be processed or said substrates having been processed so as to change over said load lock chamber or said unload lock chamber in an atmospheric atmosphere or a vacuum atmosphere,

wherein the transfer method comprises:

carrying in and carrying out said substrates to be processed or said substrates having been processed, one-by-